DOCUMENT RESUME

ED 164 621 TM 008 325

AUTHOR Aaronson, May; Schaefer, Earl S.
TITLE Preschool Preposition Test. Manual of Instructions (and Related Documents).
PUB DATE Mar 78
NOTE 46p.; Paper presented at the Annual Meeting of the American Educational Research Association (62nd, Toronto, Ontario, Canada, March 27-31, 1978); For related document, see TM 008 063 ; Best copy available

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Diagnostic Tests; Form Classes (Languages); Individual Tests; *Norms; Performance Tests; Preschool Education; *Preschool Tests; *Scoring Formulas; *Screening Tests; Testing; Test Items; Verbal Development; *Vocabulary Development
IDENTIFIERS Prepositions; *Preschool Preposition Test; Spatial Skills; *Test Manuals

ABSTRACT

The Preschool Preposition Test (PPT) is a receptive language test which examines the comprehension of verbal directions using spatial prepositions or prepositional phrases, together with manipulative objects. The 23 items ask the child to place a ball in back of or into another object, and so on. The test is designed for 3 to 5-year old children whose native language is English. Other research studies have indicated the reliability and validity of the PPT as a developmental screening instrument with normal children and certain exceptional groups. This document contains general instructions for administering the PPT, a description of the equipment used, and detailed scoring instructions. Sample items are included, as well as scoring sheets, percentile ranks corresponding to different raw scores of different age groups, instructions for best interpretation, item difficulty ranking, correlations with Peabody Picture Vocabulary Test scores, a Classroom Behavior Description which may be used with the PPT, and three test reviews. (Author/GDC)

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PRESCHOOL PREPOSITION TEST*

Manual of Instructions
(and related documents)

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INTRODUCTION

The Preschool Preposition Test (PPT) is a receptive language test which examines the comprehension of verbal directions using spatial prepositions or prepositional phrases together with objects. Each child is tested individually. Paraprofessionals and volunteers can handle an entire testing program. Because children find the test materials appealing, gaining their cooperation poses few if any problems. To the child, the test materials are seen as an attractive toy. Examiners, too, report they enjoy working with the materials. The Examiner hands the child a red 1-1/2" diameter half-ball that has magnetic material on the flat side. The Examiner directs the child to make placements with the ball onto a metal board placed upright in front of him. The board is painted with a picture illustrating a bright red boy facing a green car on a yellow background. The Examiner reads aloud 23 items in turn, each containing a preposition or prepositional phrase; for example, "Put the Ball <u>into</u> the boy's Hands," "Put the Ball <u>in back of</u> the car." In response, the child places the magnetized red half-ball onto the board, where it adheres. The Examiner then marks the child's placement with an X and an Item Number on a Picture Score Sheet, a reduced-size replica of the testing board-picture. The final scoring is done later by a trained Scorer. Only raw scores are used, the highest obtainable score being 23. Children are not tested unless English is their native language. A more complete description of the test and testing materials is available elsewhere (Aaronson and Schaefer, 1968; Aaronson and Phillips, 1977).

Over the past 10 years, the Preschool Preposition Test (PPT) has been used experimentally as a developmental screening instrument for children ages three to five. A substantial amount of evidence shows the PPT to be valid and reliable with normal children and also with special populations including those with delayed

language development or behavioral difficulties, and older disadvantaged and mentally retarded children. Predictive validity has been reported over a five school year span for a group of Head Start children whose third grade mental abilities and achievement scores correlated significantly with their PPT scores at age four. The PPT's development was based on Bayley's work with the Berkeley Growth Study data (Bayley, 1967) in which she found that knowledge of prepositions correlated with verbal and spatial abilities in the early years. Later, others working with the same data (McCall, Eichorn, Hogarty, 1977) found that knowledge of a few prepositions at 27 to 30 months correlated with IQ scores at six to 36 years of age. Piaget (1948) observed that verbal directions (such as those in the PPT) generate in the child a combination of sensorimotor activity and perceptual discrimination which are precursors to comprehension of spatial concepts. George Miller (1976) has recently published a review of research concerned with prepositions and other spatial locatives, or space relations terms. He defines spatial prepositions as belonging to a category of spatial language used primarily to indicate where things are, and believes them to be cognitively and grammatically very complex. Even adults, he says, have difficulty with some spatial words.

TEST MATERIALS

1. Manual of Instructions

2. Testing equipment
   Test board
   Magnetized balls

3. Individual test records

4. Picture score sheets

GENERAL INSTRUCTIONS

1. Test should be given in a quiet room away from distractions.

2. PPT board should be placed in an upright position on a table with the center of the board approximately at the child's eye level.

3. Examiner should invite the child with a preliminary statement such as, "Look, we're going to play a new ball game" or "This is a magic ball game. Want to try it?"

4. The child should be encouraged to explore the test board, trace the figures with his fingers if he wishes, and make a few practice ball placements. The Examiner could use this time to record identifying information on the test record forms, casually inattentive to the child's initial efforts. This helps to create a relaxed atmosphere.

5. During the testing, the Examiner should be pleasant and encouraging. Smiles, nods of approval, comments such as,"Good try! Fine!" are appropriate.

6. Child should <u>not</u> be made aware of incorrect responses. If he looks questioningly to the Examiner following an incorrect response, he should be given general assurance or encouragement.

7. The Examiner should proceed as smoothly as possible with continuity from one item to the next, managing scoring in a rapid and unobtrusive manner.

8. Examiner should have one or two balls in reserve to use as substitutes if child drops the ball to the floor.

9. If child should use the ball in an inappropriate manner so that it does not adhere to the board at points of placement (on its side, back, etc.), credit should be given for correct placement if ball "points" correctly.

10. If child should spontaneously change his placement, his final response should be credited.

TEST PROCEDURE

Individual Test Record, Part I: Present the first ten items of the Individual Test Record in order to test the child's comprehension of the names of the test objects. Teach names involved in any items failed.

Individual Test Record, Part II: Begin with item one and read or present each item exactly as written, pausing a bit for emphasis before stating the underscored words. An item can be repeated if the child fails to respond. Testing usually proceeds more smoothly and rapidly if the ball is offered to the child after the item is presented, and retrieved from the board by the Examiner after the placement. Using two balls alternately sometimes adds interest for the child and speeds up performance.

METHODS OF SCORING

I. Test Record Method

Examiner scores directly on to the Individual Test Record during the testing session. This method is a time-saver and is suitable for use by a professional examiner experienced in testing and scoring the PPT. No permanent record of child's responses is obtained and scoring cannot be rechecked for accuracy.

II. Picture Score Sheet Method

Examiner records placements on to the Picture Score Sheet during the testing session. Scoring is determined at a later time, and possibly by a different person, and entered on to the Individual Test Record. This method is recommended for the following reasons:

1. A permanent record of the child's responses is obtained.
2. Examiner is relieved of making immediate judgments and can give full time and attention to the testing.
3. The activity of scoring can be separated from the testing. Thus a number of examiners can conduct a testing program after brief training, leaving the scoring to one, or a few, scorers.
4. An inexperienced scorer gains time to make judgments with the aid of Rules and Diagrams for Scoring.
5. Scores can be rechecked for accuracy.

RULES AND DIAGRAMS FOR SCORING

Part I of the Individual Test Record systematically tests the child's comprehension of key words needed for Part II. He should be taught the meaning of any that he misses. Part I should always be administered before presenting Part II.

Rules for Scoring Part II should be carefully followed in recording passes and fails on the Individual Test Record. Diagrams for Scoring, as represented in Figures 2,3,4,and 5, further describe the many possible correct responses. They should be used in conjuction with the rules and not as a replacement. Each correct response earns one point. Do not combine with Part I total.

The term "mostly," as used in the rules below should be interpreted, "Child apparently understood the command but didn't make placement with total precision."

RULES FOR SCORING PART II

1. Into the boy's hands. Score pass if ball is placed mostly within circle made by the two hands. (See Fig. 2)

2. Up as high on the board as you can. Score pass if placed anywhere on the board above the level of the top of the car, the top of the hood, the top of the hands or the top of the head. Imaginary line level with top of hood governs open spaces front and back of car. (See Fig. 2)

3. Under the car. Score pass if placed under the body of the car or car wheels. (See Fig. 2)

4. Inside the window. Score pass if placed inside back cut-out window. Score fail if placed on front window. (See Fig. 2)

5. Down as low on the board. Score pass if placed anywhere below body of car or car wheels, or below boy's feet. Imaginary line level with bottom of body of car governs open spaces. (See Fig. 3)

6. In back of the car. Score pass if placed in back of the car, from bottom of wheel to top of roof. (See Fig. 4)

7. Underneath the car. Same as Item 3. (See Fig. 2)

8. On the top of the car. Score pass if placed on the car roof, top of trunk, top of hood, or on the yellow board touching or overlapping car roof, top of trunk or top of hood. (See Fig. 3)

9. In front of the boy. Score pass if placed on board in front of boy, including within boy's hands, providing it does not touch car or extend into car space. (See Fig. 4)

10. Between the wheels of the car. Score pass if placed mostly withingarea created by two wheels, using as guidelines an imaginary line connecting the bottoms of the wheels and another connecting the tops of the wheels. (See Fig. 4)

11. In back of the boy's shoe. Score pass if placed understandably in back of either shoe. If placed in back of forward shoe, ask child to point to the shoe he means. Score pass if ball over-

laps back portion of boy's shoe. Score fail, if placed squarely on either shoe, under either shoe, or anywhere else. (See Fig. 4)

12. On the car. Score pass if anywhere on the car, excluding inside of open window. Score fail if placed inside open window. (See Figur4)

13. Between the boy and the car. Score pass if placed anywhere between boy and car, excluding inside boy's hands. It should be mostly between an imaginary line drawn from top of boy's head to top of roof or car, and from bottom of boy's front shoe to bottom of front wheel of car, provided it does not extend into car's space. (See Fig. 5)

14. Below the car. Same as Item 3. (See Fig. 2)

15. Against the boy's head. Score pass if placed anywhere on boy's hair, on the board touching his hair, or in a position overlapping the hair and the board. (See Fig. 3)

16. Beneath the car. Same as Item 3. (See Fig.2)

17. Behind the boy. Score pass if placed behind the boy from the top of his head to the bottom of his shoes. (See Fig.4)

18. Above the boy's head. Score pass if placed on board mostly above head whether or not it touches head. Score fail, if overlapping head and board. (See Fig.4)

19. Near the boy's shoe. Score pass if placed near the boy's front or back shoe. Score fail if on a shoe or overlapping shoe and board. (See Fig. 2)

20. Next to a wheel. Score pass if anywhere clearly next to a wheel of the car. Score fail if on a wheel or overlapping a wheel and the board. (See Fig. 5)

21. At the top of the boy's head. Score pass if placed on top of boy's hair, on board on top of boy's head, or overlapping top of boy's head and the board. (See Fig. 5)

22. On a shoe of the boy. Score pass if placed on either of the boy's shoes. (See Fig. 5)

23. In a car window. Score pass if placed in either window of the car. (See Fig. 3)

CODES FOR BALL PLACEMENT ON PICTURE SCORE SHEET.
(See Sample Score Sheet, Figure 1)

1. Place an X on picture score sheet at the point the child places the ball on the PPT board.
2. Place Item No. adjacent to X whenever possible. If placed at a distance from X, connect with a line.
3. If, in response to additional items, the child places the ball on a spot he has used before, add the new item numbers to the previous X.
4. Draw a dividing line to separate adjacent placements.
5. If the ball has been placed touching but not overlapping an object, signify by positioning the "feet" of the X accurately on the picture score sheet and underscoring with a line.
6. If ball placement has overlapped an object and the board, place X in overlap position and place a circle around it.

Caution: Testers must master above codes and use them with precision in order that others can score or rescore the test. The Picture Score Sheet becomes a permanent record of the child's performance.

ACKNOWLEDGEMENTS

We wish to acknowledge with gratitude the persons who have contributed to the development of the Preschool Preposition Test. The test research was undertaken on the basis of exploratory investigations with prepositional testing which Nancy Bayley shared with the authors. Jean Rosenfeld was the artist, and also assisted with the early test construction, as did Julie Forrest. We are indebted to Joan Gerver for recommending the picture score sheet method of scoring, and to Hubert Lee Gore and Charles J. Byrne for assistance in technical development. Special thanks go to Walter C. Ashe for his innovative suggestions, his skill and his patience in handling the research and development of the testing equipment, and to Hazel W. Rea for her support.

PRESCHOOL PREPOSITION TEST*

May Aaronson and Earl S. Schaefer
Individual Test Record

Case No. _____

Total Score--Part I _____

Total Score--Part II _____

Name _____ Sex _____

Birth Date _____ Age _____ Date of Test _____
Yrs., Mos., Days

Examiner _____ Testing time _____

Examiner's comments (continue on reverse side) Child was
a. ☐ Easy to test
b. ☐ Average to test
c. ☐ Hard to test

Read items to child. Score one point for each pass. "Put your finger on," "point to" or "touch" can be used instead of "show me."

Part I

(When Part I is completed, teach items that were failed.)	Score
1. Show me the car.	
2. Show me the boy.	
3. Show me the board that the car and the boy are on. (Teach that board is all the "yellow" part)	
4. Show me the wheels of the car. (Child should "show" or "finger" both tires)	
5. Show me the windows of the car. Which one is open?	
6. Show me the boy's face. (Child should "show" or "finger" the face but not the head)	
7. Show me the boy's hands. (Child should "show" or "finger" both hands)	
8. Show me the boy's feet. (Child should "show" or "finger" both feet)	
9. Show me the boy's head. (Child should "show" or "finger" the head but not the face)	
10. Show me the boy's shoes. (Child should "show" or "finger" both shoes)	
Total Score	

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Part II Name _____

For scoring Part II, consult Rules and Diagrams for Scoring.

		Score
1.	Put the ball into the boy's hands, into the boy's hands.	
2.	Put the ball up as high on the board as you can, up as high on the board as you can.	
3.	Put the ball under the car, under the car.	
4.	Put the ball inside the window of the car, inside the window of the car.	
5.	Put the ball down as low on the board as you can, down as low on the board as you can.	
6.	Put the ball in back of the car, in back of the car.	
7.	Put the ball underneath the car, underneath the car.	
8.	Put the ball on the top of the car, on the top of the car.	
9.	Put the ball in front of the boy, in front of the boy.	
10.	Put the ball between the car wheels, between the car wheels.	
11.	Put the ball in back of the boy's shoe, in back of the boy's shoe.	
12.	Put the ball anywhere on the car, on the car.	
13.	Put the ball between the boy and the car, between the boy and the car.	
14.	Put the ball below the car, below the car.	
15.	Put the ball against the boy's head, against the boy's head.	
16.	Put the ball beneath the car, beneath the car.	
17.	Put the ball behind the boy, behind the boy.	
18.	Put the ball above the boy's head, above the boy's head.	
19.	Put the ball near the boy's shoe, near the boy's shoe.	
20.	Put the ball next to a wheel of the car, next to a wheel of the car.	
21.	Put the ball at the top of the boy's head, at the top of the boy's head.	
22.	Put the ball on the boy's shoe, on the boy's shoe.	
23.	Put the ball in a car window, in a car window.	

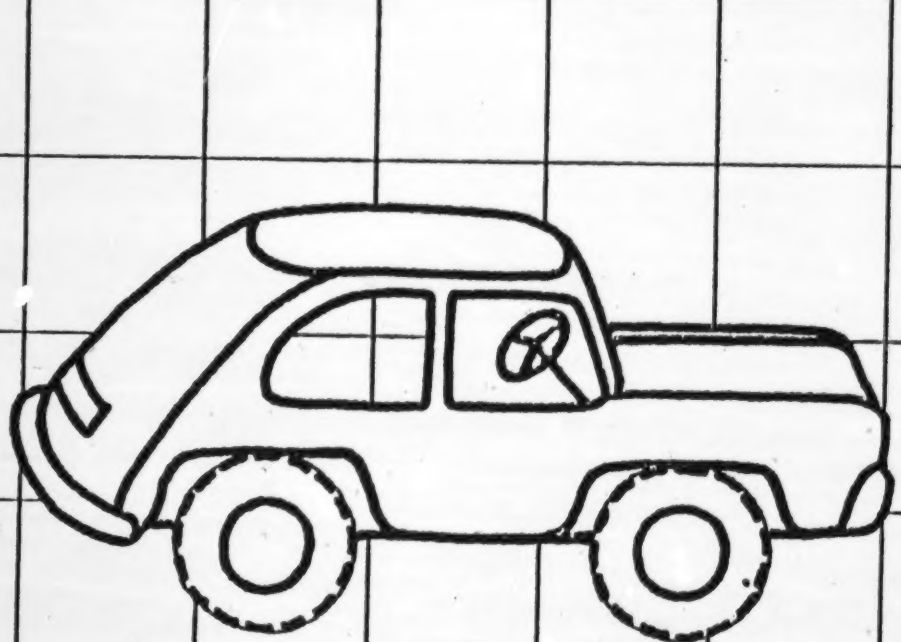
TOTAL SCORE

10-68 R

12.

PICTURE SCORE SHEET

Name _____

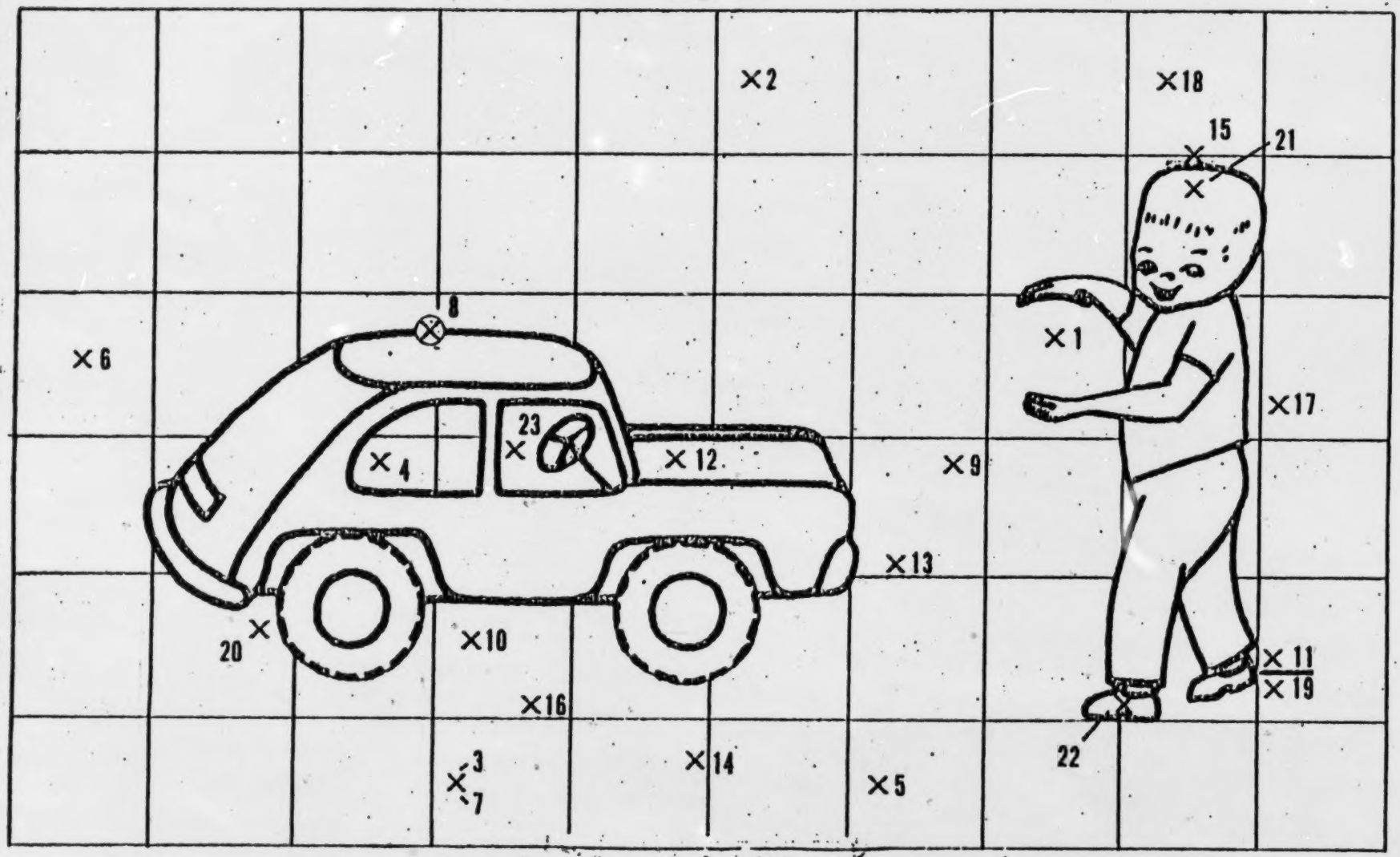


16

17

3

SAMPLE SCORE SHEET WITH CODES FOR BALL PLACEMENT
Figure 1



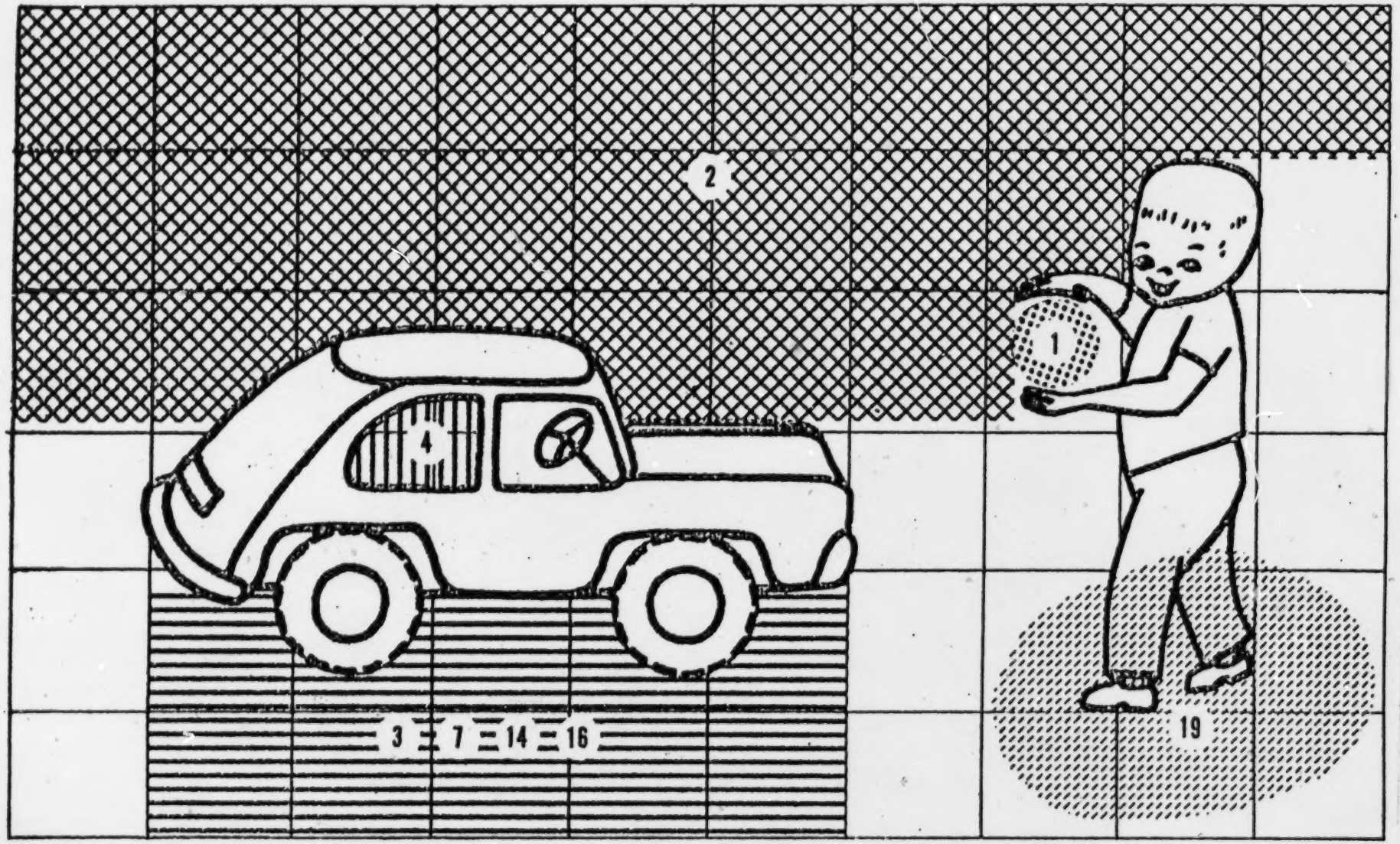
1. × - Point of placement
2. ×16 - Item No. next to point of placement
3. ×3 = Same point of placement for 2 items
4. ×II / ×19 - Dividing line to separate adjacent placements.
5. ⅄ - Feet of X to contact picture of object, if placement touches object
6. ⊗ - X to overlap line, encircled by O, if placement overlaps object

13.

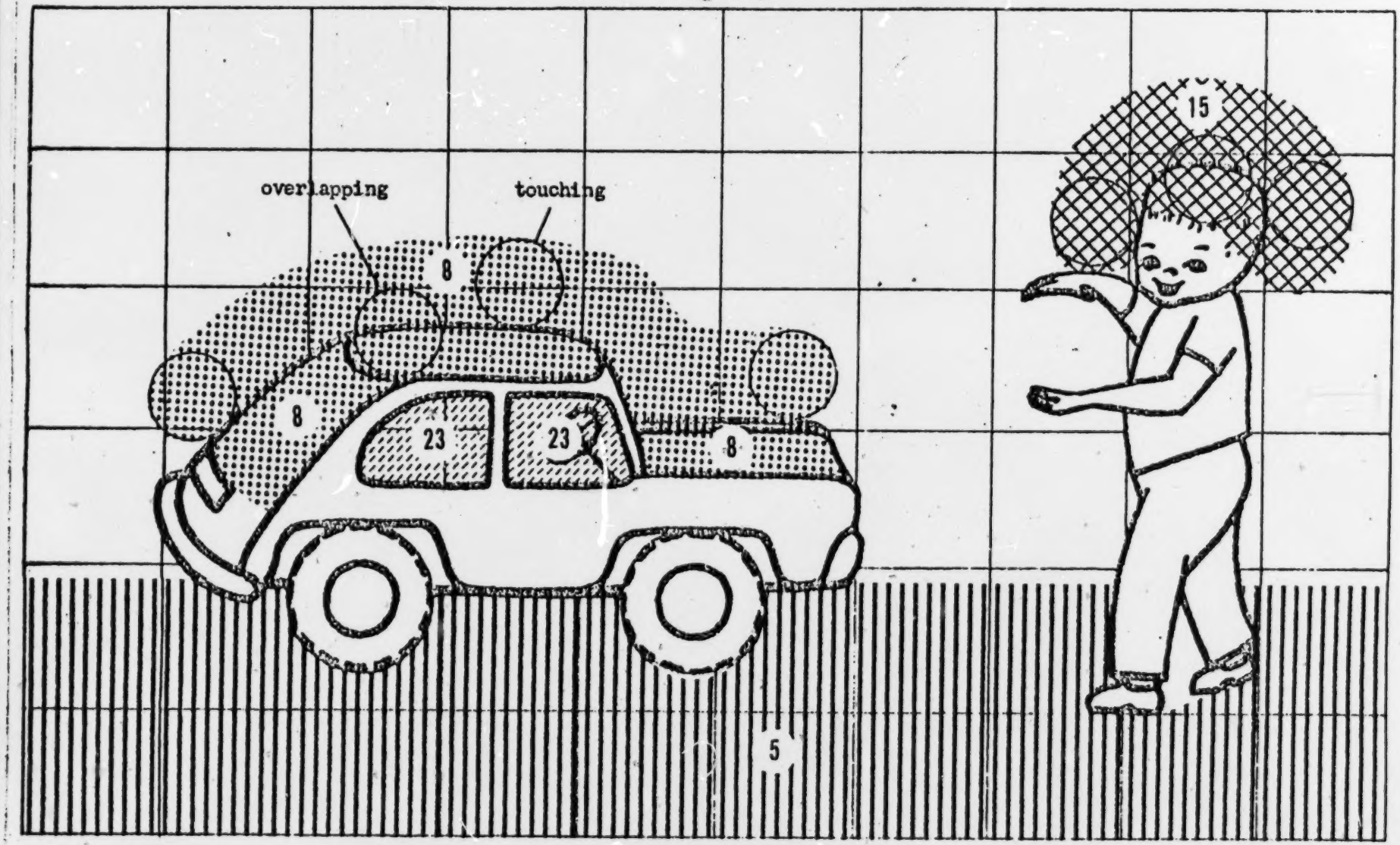
18

19

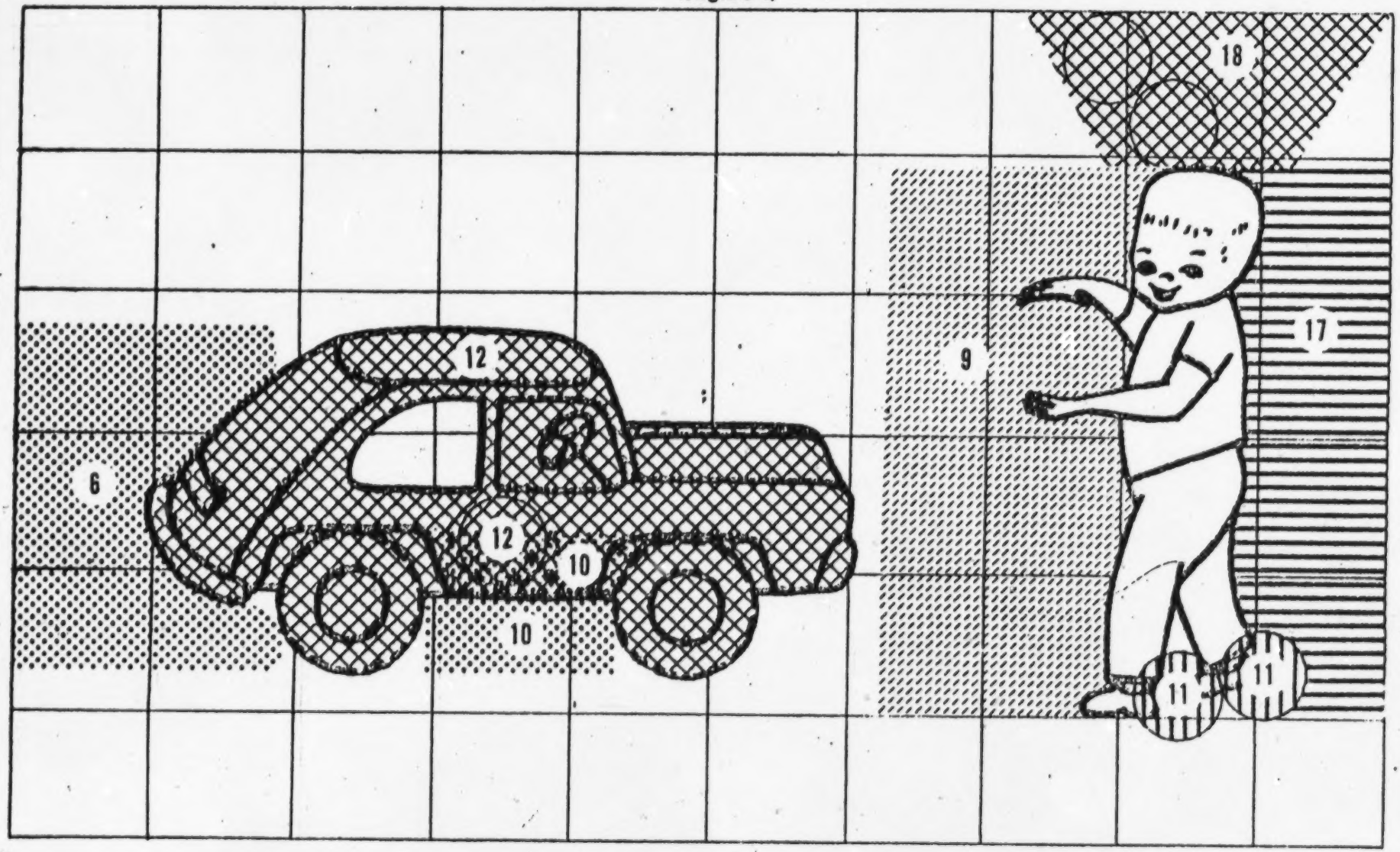
SCORING DIAGRAM FOR ITEMS 1, 2, 3, 4, 7, 14, 16, 19
Use only in conjunction with "Rules for Scoring"
Figure 2



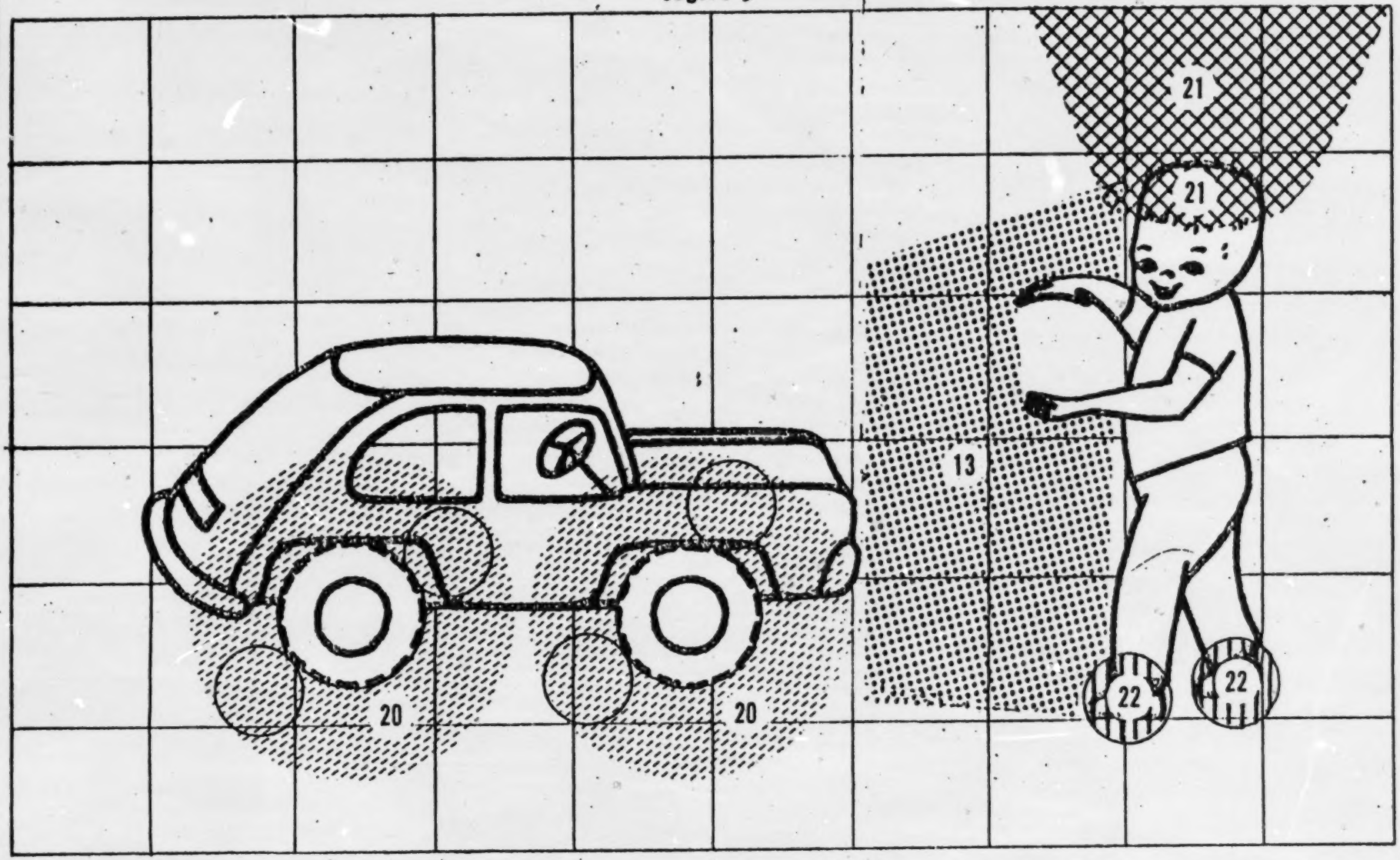
SCORING DIAGRAM FOR ITEMS 5, 8, 15, 23
Use only in conjunction with "Rules for Scoring"
Figure 3



SCORING DIAGRAM FOR ITEMS 6, 9, 10, 11, 12, 17, 18
Use only in conjunction with "Rules for Scoring"
Figure 4



SCORING DIAGRAM FOR ITEMS 13, 20, 21, 22
Use only in conjunction with "Rules for Scoring"
Figure 5



METHOD FOR COMPUTING AGE

Example 1

	Year	Month	Day	
	73	8	8	Testing date
−	70	6	5	Birthdate
	3	2	3	Age at testing = 3 years, 2 months, 3 days

Example 2

	Year	Month	Day	
		7	38	
	73	~~8~~	~~8~~	Borrow 30 days from month column
−	70	6	9	
	3	1	29	

Example 3

	Year	Month	Day	
	72	19	38	Borrow 12 months from year column, then borrow 30 days from month column
	~~73~~	~~8~~	~~8~~	
−	70	9	9	
	~~2~~	10	29	

To change age to months, (1) consider 15 or more days as an extra month
(2) use chart below

	Month											
Year	0	1	2	3	4	5	6	7	8	9	10	11
2	24	25	26	27	28	29	30	31	32	33	34	35
3	36	37	38	39	40	41	42	43	44	45	46	47
4	48	49	50	51	52	53	54	55	56	57	58	59
5	60	61	62	63	64	65	66	67	68	69	70	71
6	72	73	74	75	76	77	78	79	80	81	82	83

Selected Percentile Ranks Corresponding to Raw Scores N = 922

%	66 - 71 months	60 - 65 months	54 - 59 months	48 - 53 months	42 - 47 months	36 - 41 months	30 - 35 months	24 - 29 months	%
99	23	23	23	23	23	21	19	14	99
98					22	20			98
97				22					97
96					21				96
94							18		94
93						19		13	93
92			22	21					92
89					20				89
88	22						17		88
87						18			87
84		22							84
81					19		16		81
80				20		17		12	80
79			21						79
77								11	77
74					18				74
73				19			15	10	73
70						16		9	70
69							14		69
68	21								68
65		21	20		17				65
63						15	13	8	63
58				18					58
57					16	14			57
55	20								55
53								7	53
52						13	12		52
50		20							50
49				17					49
47			19						47
46					15				46
45	19								45
40								6	40
39				16		12	11		39
38					14				38
37							10		37
35				15					35
34			18						34
33					13			5	33
30	18	19		14			9		30
27						11			27
25			17				8		25
24	17				12				24
23				13				4	23
22		18							22
19							7		19
18						10			18
17			16	12					17
16					11				16
14	16					9			14
12				11	10				12
11				10					11
10		17	15		9		6		10
7	15							3	7
6	14		13			8			6
5			12		8				5
4	13	16		9	7	7			4
3		14	11		6		4	2	3
2		10	8	6					2
1	11	6	7	4	5	6			1

PRESCHOOL PREPOSITION TEST (PPT)

PPT (RAW) SCORES BY AGE, MEANS, AND STANDARD DEVIATIONS FOR "NORMAL" SUBJECTS.*

Highest Possible Score = 23; N = 922

Age in Months	24-29	30-35	36-41	42-47	48-53	54-59	60-65	66-71
Number in Sample	30	67	139	113	168	192	147	66
Standard Deviation	3.63	4.37	3.73	4.10	4.11	3.16	2.65	2.81
2 S.D.'s above Mean	15.09	20.83	21.39	23+	23+	23+	23+	23+
1 S.D. above Mean	11.46	16.46	17.66	19.58	20.82	22.15	22.82	22.35
Mean Score	7.83	12.09	13.93	15.48	16.71	18.99	20.17	19.54
1 S.D. below Mean	4.20	7.72	10.20	11.38	12.60	15.83	17.52	16.73
2 S.D.'s below Mean	0.57	3.35	6.47	7.28	8.49	12.67	14.87	13.92

INTERPRETATION OF PRESCHOOL PREPOSITION TEST SCORES:

The PPT is a screening test for identifying children having the possibility of developmental delay. A child so identified should be given a more thorough evaluation. Then if the results on the PPT are corroborated, an effort should be made to determine the underlying cause(s) and, if needed, appropriate services should be provided. The above chart, based on PPT scores earned by almost 1,000 children, ages 2 to 6, can be used as a guide to identify children in need of additional evaluation.

1. Score above the Mean. No additional evaluation necessary.

2. Score between the Mean Score and 1 S.D. below the Mean. No additional evaluation is indicated unless the PPT score is coupled with serious behavioral problems.

3. Scores lower than 1 S.D. below Mean. Children should be given additional evaluation. If limited program resources preclude additional assessment for all children in this category, begin with lowest scorers and continue to a decided upon cut-off point.

Based on Table 2, April 1977 report entitled "Preschool Preposition Test: A Preliminary Report."

*Excluded are institutionalized, homeless children, moderately and severely emotionally disturbed, and mentally retarded children.

2-78

Date _____

PRESCHOOL PREPOSITION TEST

SAMPLE INFORMATION

NOTE: The PPT should not be used for testing children whose home language is not English.

1. Name and address of researcher and organization _____

_____

_____

2. Number of children to be tested _____ Ages _____

3. Approximate sex distribution: male _____% female _____%

4. Approximate racial distribution: black _____% white _____%

other (describe) _____%

5. Approximate social class distribution: poverty _____% working _____%

middle_____% upper _____%

6. Approximate distribution of residence: rural _____% suburban _____%

urban _____%

7. Does a majority of this sample have diagnosed disabilities? _____

If "yes", please describe (terms such as "autistic-like" or "physically handicapped" should be further defined).

8. Do these children live in an institution? _____

9. Where will the sample be tested? _____

10. Are there plans for follow up? _____ If "yes" please describe.

Protection of Human Subjects The PPT is a screening instrument in research to identify children with developmental delay for diagnosis and, if indicated, special assistance. It must not be used for diagnosis. Extreme caution should be exercised in the use, sharing, storage and retrieval of PPT scores on individual children.

12-77

PRESCHOOL PREPOSITION TEST

PPT Items - Rank Order of Difficulty with Percent Passing for 6 Month Age Groups

Rank #1 - easiest item

N = 779

Rank Order	Age in Months							
	24 - 29 Item, %	30 - 35 Item, %	36 - 41 Item, %	42 - 47 Item, %	48 - 53 Item, %	54 - 59 Item, %	60 - 65 Item, %	66 - 71 Item, %
1	12, 83	23, 94	21, 95	21, 94	23, 99	21, 99	21, 99	2, 100
2	23, 80	22, 88	23, 95	23, 93	4, 93	23, 99	23, 99	21, 100
3	22, 73	15, 88	22, 89	4, 91	2, 92	2, 98	7, 98	23, 100
4	4, 73	21, 85	4, 86	2, 88	21, 90	4, 97	4, 97	3, 97
5	15, 63	2, 80	15, 85	22, 80	22, 84	5, 95	5, 97	4, 97
6	1, 60	4, 79	2, 83	12, 79	3, 79	7, 93	3, 96	7, 97
7	21, 57	12, 79	12, 78	7, 75	7, 79	3, 89	2, 95	5, 95
8	2, 53	8, 74	1, 68	3, 74	17, 78	19, 89	19, 93	17, 92
9	8, 37	3, 58	19, 68	15, 74	12, 77	20, 86	20, 90	20, 89
10	18, 37	1, 53	7, 64	19, 66	5, 75	17, 85	6, 89	22, 89
11	11, 27	7, 52	8, 64	5, 62	8, 75	12, 81	9, 89	9, 87
12	3, 27	19, 52	18, 60	8, 62	15, 72	8, 79	11, 89	12, 85
13	19, 20	18, 47	3, 53	1, 60	19, 71	22, 79	17, 89	19, 85
14	9, 17	9, 46	5, 53	20, 60	9, 69	16, 78	22, 88	11, 84
15	7, 17	5, 38	20, 47	11, 59	18, 69	11, 76	16, 85	1, 80
16	17, 13	11, 38	11, 46	17, 59	11, 67	1, 75	18, 84	13, 80
17	6, 10	17, 35	13, 44	9, 58	.1, 64	9, 75	1, 83	6, 79
18	13, 10	13, 33	16, 44	16, 53	20, 62	18, 75	12, 83	18, 79
19	16, 10	6, 26	17, 42	18, 52	16, 58	13, 74	8, 81	8, 75
20	20, 10	20, 20	6, 36	13, 46	13, 55	15, 73	13, 81	16, 74
21	5, 3	16, 18	9, 36	6, 42	6, 53	6, 71	15, 72	14, 67
22	14, 3	10, 14	14, 28	14, 34	14, 34	14, 57	14, 70	15, 64
23	10, 0	14, 8	10, 21	10, 32	10, 33	10, 47	10, 64	10, 53

PRESCHOOL PREPOSITION TEST

PPT Items - Percent Passing with Rank Order of Difficulty for 6 months Age Groups

Rank #1 - easiest item

N = 779

PPT Item	Preposition Involved	Age in Months 24 - 29		30 - 35		36 - 41		42 - 47		48 - 53		54 - 59		60 - 65		66 - 71	
		%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
1	into	60	6	53	10	68	8	60	13	64	17	75	16	83	17	80	15
2	up high	53	8	80	5	83	6	88	4	92	3	98	3	95	7	100	1
3	under	27	12	58	9	53	13	74	8	79	6	89	7	96	6	97	4
4	inside	73	4	79	6	86	4	91	3	93	2	97	4	97	4	97	5
5	down low	3	21	38	15	53	14	62	11	75	10	95	5	97	5	95	7
6	in back of	10	17	26	19	36	20	42	21	53	21	71	21	89	10	79	17
7	underneath	17	15	52	11	64	10	75	7	79	7	93	6	98	3	97	6
8	on the top of	37	9	74	8	64	11	62	12	75	11	79	12	81	19	75	19
9	in front of	17	14	46	14	36	21	58	17	69	14	75	17	89	11	87	11
10	between	0	23	14	22	21	23	32	23	33	23	47	23	64	23	53	23
11	in back of	27	11	38	16	46	16	59	15	67	16	76	15	89	12	84	14
12	on	83	1	79	7	78	7	79	6	77	9	81	11	83	18	85	12
13	between	10	18	33	18	44	17	46	20	55	20	74	19	81	20	80	16
14	below	3	22	8	23	28	22	34	22	34	22	57	22	70	22	67	21
15	against	63	5	88	3	85	5	74	9	72	12	73	20	72	21	64	22
16	beneath	10	19	18	21	44	18	53	18	58	19	78	14	85	15	74	20
17	behind	13	16	35	17	42	19	59	16	78	8	85	10	89	13	92	8
18	above	37	10	47	13	60	12	52	19	69	15	75	18	84	16	79	18
19	near	20	13	52	12	68	9	66	10	71	13	89	8	93	8	85	13
20	next to	10	20	20	20	47	15	60	14	62	18	86	9	90	9	89	9
21	at the top of	57	7	85	4	95	1	94	1	90	4	99	1	99	1	100	2
22	on	73	3	88	2	89	3	80	5	84	5	79	13	88	14	89	10
23	in	80	2	94	1	95	2	93	2	99	1	99	2	99	2	100	3
		N=30		N=66		N=78		N=85		N=134		N=149		N=113		N=61	

PRESCHOOL PREPOSITION TEST

Rank Order of Correlations of PPT Items with PPT and PPVT* Total Raw Scores and PPVT IQs and MA for Three Age Groups (includes only subjects with PPVT scores)
Rank #1 - best correlation

PPT Item	Preposition Involved	30 - 35 mos. N = 48				36 - 41 mos. N = 45				48 - 52 mos. N = 26			
		PPT	PPVT Raw	IQ	MA	PPT	PPVT Raw	IQ	MA	PPT	PPVT Raw	IQ	MA
1	into	10	19	13	18	21	23	23	23	8	10	8	8
2	up high	18	16	14	16	7	1	1	1	12	13	11	13
3	under	1	3	3	2	3	6	2	4	4	5	5	7
4	inside	21	22	21	22	16	17	15	18	18	16	18	17
5	down low	13	7	9	4	9	2	5	2	5	6	9	6
6	in back of	2	1	1	1	12	4	11	3	16	8	14	12
7	underneath	5	4	11	3	4	10	8	12	10	15	16	15
8	on the top of	8	18	17	17	2	14	13	15	22	22	22	23
9	in front of	16	21	22	19	14	4	2	6	14	9	10	10
10	between	14	12	6	12	18	8	10	7	9	11	6	8
11	in back of	8	11	5	10	17	22	22	22	3	12	12	11
12	on	22	23	23	23	23	19	20	19	19	18	17	16
13	between	7	15	18	15	1	3	4	5	7	1	1	1
14	below	17	9	8	9	7	7	9	8	13	4	7	3
15	against	20	8	10	8	22	16	19	14	23	23	21	22
16	beneath	11	14	15	14	15	11	17	9	17	21	23	21
17	behind	6	2	4	5	10	15	14	16	15	17	15	18
18	above	3	5	2	6	6	9	6	10	1	2	2	2
19	near	4	20	19	21	13	21	16	21	2	3	3	5
20	next to	15	17	20	20	5	20	12	20	5	7	4	4
21	at the top of	12	6	6	7	11	12	6	11	11	14	13	14
22	on	23	10	12	10	20	18	21	17	20	19	19	19
23	in	19	13	16	13	19	13	18	13	21	20	20	20

*Peabody Picture Vocabulary Test

ANALYSIS OF DISTRIBUTION FOR SKEWNESS AND KURTOSIS
FOR NORMAL SAMPLE BY SIX MONTH AGE INTERVALS
FROM 21 TO 71 MONTHS*

N = 922

Age Group	N	$\bar{X}$	S.D.	Skewness Coefficient[1]	Kurtosis Coefficient[2]
24 - 29	30	7.83	3.63	.34	1.88
30 - 35	67	12.09	4.37	-.24	2.45
36 - 41	139	13.94	3.73	.05	2.19
42 - 47	113	15.48	4.10	-.39	2.55
48 - 53	168	16.71	4.11	-.74	3.06
54 - 59	192	18.99	3.16	-1.49	6.11
60 - 65	147	20.17	2.65	-2.33	12.02
66 - 71	66	19.55	2.81	-.85	3.26

*Excluded are institutionalized, homeless children, moderately and severely emotionally disturbed, and mentally retarded children.

[1]Skew for normal distribution should be 0.

[2]Kurtosis for normal distribution should be 3.

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Used in conjunction with Preschool Preposition Test by several PPT testing projects. 28.

CLASSROOM BEHAVIOR DESCRIPTION

May Aaronson and Earl S. Schaefer

Child's Name _____ Birth Date _____

School _____ Class _____

Name of Rater (teacher) _____ Date rated _____

Please describe the behavior of this child to the best of your ability from your own personal observation and experience without discussion with others. Circle the most appropriate number on each line. Don't omit any.

		Very Much Like	Some-what Like	Very Little Like	Not At All Like
1.	Is Considerate and Kind.	4	3	2	1
2.	Is Distractible and Hyperactive.	4	3	2	1
3.	Is Conforming and Obedient.	4	3	2	1
4.	Is Attentive and Persevering.	4	3	2	1
5.	Is Gregarious and Verbally Expressive.	4	3	2	1
6.	Is Belligerent and Irritable.	4	3	2	1
7.	Is Withdrawn and Solitary.	4	3	2	1
8.	Is Self-Reliant and Self-Sufficient.	4	3	2	1
9.	Is dependent, wants help constantly.	4	3	2	1
10.	Is able in comprehension and problem-solving.	4	3	2	1

Circle the number which most nearly fits:

4 Well adjusted
3 Fairly well adjusted
2 Has some behavior difficulties
1 Has many behavior difficulties

THE MENNINGER FOUNDATION

A NON-PROFIT CENTER FOR TREATMENT AND PREVENTION, RESEARCH AND PROFESSIONAL EDUCATION IN PSYCHIATRY

Topeka, Kansas 66601

March 22, 1973

Mrs. May Aaronson
Bureau of Child Mental Health
National Institute of Mental Health
5600 Fishers Lane
Rockville, Maryland 20852

Dear May:

After talking with Betty Rosen and sharing our reactions to the interaction of the disturbed children with the PPT, here are some thoughts we have about this.

Primarily, we agree that almost anyone can be taught in a relatively short time to administer the PPT to white middle-class children. At Community Nursery School (which was our version of such a school) the average testing time was 7 - 12 minutes and about a third of the children topped out.

At the day care centers we had somewhat different experiences. For one thing, about one-tenth the population of each school was what we would consider deviant. There were speech problems, hyperactivity, excessive shyness, perseveration, some children held back about coming into a separate room with one of us (although we spent a day or two observing at each school and having a meal with the children at appropriate centers so that we would not be completely strange to them) and some children were so enchanted by the one-to-one experience that there was difficulty in getting them to leave the testing room. At all schools (except those for the disturbed which I'll discuss later) we took each child by the hand to and from the testing area or, in the case where there were dangerous stairways, carried the children up and down. The time spent in testing at the day care centers was from 10 - 15 minutes per child and there were more extraneous questions from some of the children (from "why do you want me to put it there" to "how do you make the board".) For both the Community Nursery School and the day care centers a low table and chairs were provided and used.

The two treatment centers are quite different. In school 6, the director's office was available, in school 7, there was only hall space since they were in the process of moving to their own building but had not yet done so and facilities were very limited. In both places we set up our equipment (by choice) on a small rug on the floor and asked the teacher for an ordering of children to be tested (taking those who felt it hard to wait first and those who were more withdrawn later). We made it clear to all the children

that everyone would have a turn and arrived on consecutive days so that they could be sure of this. We found that with the disturbed children, a tester could do no more than 4 - 5 in a morning or afternoon without becoming mechanical, something to which these children were particularly responsive. The testing here took from 15 - 20 minutes per child, with more moving about, trying the magnets on everything in sight, frequent interpretation of "in back of the car" as on the reverse side of the board (to this we responded--"we only use the painted side of the board--put the ball in back of the car"). In other cases of misinterpretation (that obviously did not mean that the preposition was unfamiliar)--such as "is his foot inside his shoe, is his hair on top of his head, etc., we again repeated the instruction. Many of these children wanted to hold on to a ball throught the testing period, some wanted to use alternating balls, or other such things; we felt this did not affect the purpose of the test and allowed them to do so. We also learned a trick from one of the first children in school 6 that we then used for schools 6 and 7 and, if we were doing the testing again, would use with any recalcitrant child in any school. Child 2 asked who was next and when he was told said, "I'll go get her", and returned holding child 3 by the hand and bringing her in in a most reassuring manner. We then used this technique, saying to child 3, "would you like to bring Johnny in for his turn now". It served to be satisfying to the children in both activities and the teachers tell us that some children are still "bringing others" in ways that serve to be helpful to both. Sitting on the floor with the children served to make them more comfortable and our on the spot scoring served to be less intrusive.

Particularly for the non verbal or nearly non verbal, the PPT was a very good way of testing their understanding, both of prepositions and of instructions. We accepted pointing as a way of answering "which is the boy?" "Where is his shoe?" etc. in the pretest. We did not have any really retarded children in our sample but felt this would be a way of finding out where some of their special difficulties were. For the disturbed children there was a greater range of scores than in any other group (one was as low as 4, but it was unique). There seemed to be some prepositions with which they had particular difficulties (between, in front of and below seemed to pose special difficulties,) but on the whole, a sophisticated tester can, I think get a great deal from the disturbed child. Our range of disturbances went from simple speech problems and hyperactivity to severe psychosis. If we can be of any further help, we'd be more than willing.

Warm wishes to both you and Julie from Betty and Fred as well as from me,

Bernice

Note: Dr. Alfred Glixman and Mrs. Bernice Glixman have given me permission to share this letter with prospective users of the Preschool Preposition Test. Mrs. Glixman wished to point out, however that the children who were tested at The Menninger Foundation were not exactly in a day care center. They were present two hours a d ay, morning or afternoon, at what is known as the Pre-School Treatment Center.

Dr. J. Stecher
275 Central Park West
New York, N.Y. 10024

March 2, 1978

Ms. May R. Aaronson, Program Specialist
Early child Care Research Program
National Institute of Mental Health
5600 Fishers Lane, Rockville, Maryland

Dear May:

I have been unable to get to my office this week because of the pressure of work in the field, therefore I must beg you to be sympathetic with my typing efforts. One of the outstanding results of my field visits was unanimous enthusiasm for the PreSchool Preposition Tests that have just been administered to threes and fours in four day care centers in Brooklyn. Every director and teacher approved of the board itself, the method of testing and said they learned something from the results. You might be interested to know that each director would like to continue the tests after the Right-to-Read project is completed. When asked why they would do so, the remarks ranged from "It gave me a chance to know just one child at a time" "It gave the child a turn to know me as a real teacher" "I never knew that_____knew that, he never talked that much" Because the test was given to most of the children a month ago, the children did not really remember the experience so I was unable to collect their reactions. It is interesting to note, however, that every child wanted to have another turn to take the tests when the teacher was administering them. This is one time when we have to resort to "one picture being worth .." When we were having our visitation from the State Department of Education Reading Specialist, I "arranged" for testing to children during the visit. When the Reading Specialist looked in on the procedure, she was so impressed with the teacher-child interaction that she had a photograph taken during the conversation after the testing. I understand the photograph developed well. Please be assured that you will have a copy as soon as we receive our prints.

Your information about elementary follow-ups was most interesting to me. I wondered, in connection with the teacher ratings of problem-solving and decision making whether the teacher observations were made before or after the tests were given. I am particularly interested in young children's decision-making activities.

Thank you for your cooperation in our endeavor to extend children's readiness for reading by diagnosing their language comprehension at an early age. Do let me know how we can, in turn, be helpful to you in what I consider a major tool in pre-school education.

Yours, Judy

Judith S. Stecher,
Project Coordinator
Right-to-Read

ERIC CLEARINGHOUSE ON EARLY CHILDHOOD
EDUCATION. UNIV. OF ILLINOIS, URBANA 61801
RESEARCH RELATING TO CHILDREN. Bulletin 33
Prepared by Dorothy O'Connell, Marilyn Terrill,
Charlene Brash-Sorensen, March 1974-Aug. 1974
Gov't Printing Office Stock #1780-01373
(Lillian G. Katz, Dir.)

33-PB-3 PRESCHOOL PREPOSITION TEST

Investigator(s): May R. Aaronson, B.A., Program Specialist, Early Child Care Research Program, Center for Studies of Child and Family Mental Health, National Institute of Mental Health, 5600 Fishers Lane, Rockville, Maryland 20852; Earl S. Schaefer, Ph.D., Department of Maternal and Child Health, School of Public Health; and Donald J. Stedman, Psychologist, Frank Porter Graham Child Development Center, Highway #54 By-Pass West, University of North Carolina, Chapel Hill, North Carolina 27514.

Purpose: To develop a test of preschool children's knowledge of prepositions which will identify children in need of an intensified language development program; and to establish the test's reliability, validity, and the subpopulations for which it is suitable.

Subjects: Preschool children, ages 2 to 5.

Methods: The development of the Preschool Preposition Test (PPT) was based on preliminary evidence which indicated that knowledge of prepositions correlated with verbal comprehension in young children. The test was designed for children 3 and 4 years old, or 5 years old in disadvantaged populations. It may be administered by nonprofessionals with minimal training. The PPT consists of 23 items presented in random order of difficulty. A yellow metallized board with slightly raised figures of a green automobile and a red boy and magnetized rubber balls are used in the test administration. Each test item directs the child to place one of the balls on the board in relation to the figures; the key words in each command are either a preposition or a prepositional phrase. Each child is given the PPT, the Peabody Picture Vocabulary Test (PPVT), and a special subtest to determine whether children perceive the red boy on the test board as Black or White. In addition, the test examiner completes a Test Behavior Checklist after each testing session.

Findings: The PPT is still in research status. It has been used on rural, suburban and urban, Black and Caucasian, lower and middle class populations. When administered (with the Stanford-Binet Intelligence Test, the Johns Hopkins Perceptual Test, and the PPVT) to 60 Black inner-city 3-year olds, the PPT scores correlated as highly with the other test scores as the tests did with each other: about .57. During the evaluations of 3-year olds, the PPT differentiated very sensitively children who were typically hostile, belligerent, negative, and irritable; and who had mothers who were hostile, relatively nonverbal with the child, and who evinced low interest in the child's education. The PPT might identify those children who could benefit from a specially provided one-to-one relationship with a warm accepting adult. Evidence of cultural or racial bias has not been found.

Duration: 1968-continuing.

Cooperating group(s): The Catholic University of America, Washington, D.C.; National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U.S. Department of Health, Education, and Welfare.

Publications: Aaronson, M. and Schaefer, E. Preschool Preposition Test. In O. G. Johnson and J. W. Bommarito (Eds.), *Tests and measurements in child development: A handbook*. San Francisco: Jossey-Bass, Inc., 1971. The Preschool Preposition Test is not available for general distribution, but the test equipment may be obtained on loan for research studies from the National Institute of Mental Health.

From: Test Collection Bulletin, Vol. 9,#2, Pamela Rosen, Editor, April 1975, Educational Testing Service, Princeton, New Jersey 08540
A Quarterly Digest of Information on Tests.

Listed under Achievement

This series covers mathematics and reading, providing separate books for grades K-1, 2-3, 4-5, and 6. Each book in the series includes 60-80 performance objectives and two test items to assess attainment of each objective. The series provides a foundation for the development of a competency-based instructional program; however, it is appropriate for use with any curriculum.

• *Pre-Academic Skills Ladders* by G. Harold Smith; Not Dated; Preschool; Ochlocknee Multi-Handicap Project, The Children's Center.

This checklist is designed to evaluate the child upon entrance into a program and to determine where the child is in regard to sequential readiness skills required in mathematics and reading. The reading readiness skills are in the areas of gross motor development and fine motor development. The mathematics readiness skills are in the following areas: one-to-one relationship, counting, matching, measurement, money, relationships, time, and patterning.

• *Preschool Preposition Test* by May Aaronson and Earl S. Schaeffer; 1968; Ages 3-5; May Aaronson.

This test measures verbal comprehension as indicated by the child's knowledge of prepositions. The test items direct the child to place a ball on a board in relation to the figures on the board. The key word in each command is either a preposition or a prepositional phrase. The child's responses may be scored directly on the Individual Test Record, or they may be recorded on Picture Score Sheets and scored later.

• *Reading Diagnostic Probes* by Stella B. Warner and William R. Myers; c1970; Grades 2-5, 3-9; American Testing Company.

These two tests are designed to identify a person's level of proficiency in basic skills of reading. Probe I deals with auditory discrimination and phonetic analysis and is appropriate for grades 2 through 5. It includes nine subtests: initial consonants, final consonants, rhyming elements, initial consonant blends, initial consonant digraphs, final consonant blends, long and short vowels, effects of R, final E, L, U, and W on vowels, and vowel digraphs. Probe II is concerned with structural analysis and yields scores for inflectional endings, compound words, contractions, inflectional changes, alphabetical order, prefixes, suffixes, syllabication, and accent. It may be administered to children in grades three through nine. The probes are also referred to as SARA (Systems Approach to Reading Analysis).

• *Reading Inventory Probe I* by the Diagnostic Reading Committee; Stella B. Warner and William R. Myers (revision and manual); c1970; Grades 1-2; American Testing Company.

Designed to measure a child's readiness to read. The test yields scores for auditory discrimination, visual discrimination, vocabulary, and comprehension skills. The device is also called READI (Reading Evaluation and Diagnostic Inventory).

• *School Curriculum Objective-Referenced Evaluation: SCORE;* c1973-present; Kindergarten-Grade 9; Westinghouse Learning Corporation.

A criterion-referenced testing system that combines behaviorally stated objectives with a computer-retrievable bank of related items, this system enables school districts to obtain tests individually tailored to their curricular needs. The objectives and items cover four subject areas at three levels: primary (K-3), intermediate (grades 4-6), and junior high school (grades 7-9).

Language Arts/Reading
This collection is presented in two parts. The Reading section is concerned with ability to understand the relationship between sound and symbol, read and comprehend words and passages, employ a variety of study skills, and classify and analyze forms of literature. The Language section deals with ability to comprehend speech, understand and use the parts of speech, and write both logically and creatively.

Mathematics
Objectives consituting this collection deal with ability to understand the use of sets, numbers, mathematical operations, fractions, units of measurement, metric and nonmetric geometry, functions and functional relationships, tables and graphs, probability, statistics, and logic.

Science
This collection of objectives covers the following: biological science; physical science; earth science and astronomy; laboratory skills, career education, and the nature of science; and processes of science.

Social Science
The objectives in this collection deal with such subjects as man's basic needs, the family unit, social groups, social problems, American and world history, economics, geography, government, political systems, sociology, and anthropology.

• *Spelling Diagnostic Probe* by William R. Myers; c1970; Grades 2-8; American Testing Company.

This list of the 2,074 most common words for spelling is presented in a continuum of grade levels. The student continues spelling words until he reaches the frustration level, which is defined as missing 10 consecutive words. The probe is also referred to as SASI (Systems Approach to Spelling Investigation).

• *Student Problem Individual Reading Evaluation Tests* (SPIRE) by Harvey Alpert and Alvin Kravitz; c1970-73; Grades 1-6, 4-10; New Dimensions in Education, Inc.

A criterion-referenced testing program designed to facilitate individual instruction and remediation and pupil placement. SPIRE is presented in two parts. The Quick Placement Test determines comprehension as well as word recognition and provides a means for identifying the level of materials to be used for instructional purposes. The Diagnostic Individual Reading Evaluation determines the status of a student's skills in the areas of word recognition, word analysis, comprehension, and

TESTS AND MEASUREMENTS IN CHILD DEVELOPMENT: A HANDBOOK, Orval G. Johnson and James W. Bommarito. Jossey-Bass Inc., San Fran. 1971

CATEGORY 1: COGNITION

PRESCHOOL PREPOSITION TEST

AUTHORS: May Aaronson and Earl Schaefer

AGE: 3 to 5

VARIABLE: Knowledge of prepositions; verbal comprehension

TYPE OF MEASURE: Test, individually administered

SOURCE FROM WHICH THE MEASURE MAY BE OBTAINED: A few of the test boards are available for research purposes from the authors at the Center for Studies of Child and Family Mental Health, National Institute of Mental Health, 5454 Wisconsin Ave., Chevy Chase, Maryland 20015.

DESCRIPTION OF MEASURE: This is a measure of the young child's knowledge of prepositions, which the authors believe is related to verbal comprehension. This test can be administered by nonprofessional personnel, and can be scored later by a professional examiner. The equipment for the test is a yellow metallized board with the figures of a green automobile and a red boy. The figures are raised slightly; the boy is colored red to minimize racial identification. The test items are divided into two parts: Part I is designed to determine whether the subject understands the essential terminology of the test, and includes these and similar items (ten items in all):

Show me the car.
Show me the boy.
Show me the board *that the car and the boy are on.*
Show me the wheels *of the car.*

If Part I indicates that the child does not know some of the terms, he is taught them.

Part II constitutes the test proper. Samples of the twenty-three items are:

Put the ball into *the boy's hands,* into *the boy's hands.*
Put the ball up *as* high *on the board as you can,* up *as* high *on the board as you can.*
Put the ball under *the car,* under *the car.*
Put the ball inside *the window of the car,* inside *the window of the car.*

The child's responses may be scored directly on the Individual Test Record as right or wrong, or they may be recorded on Picture Score Sheets and scored later. The authors provide detailed rules for scoring.

RELIABILITY AND VALIDITY: Preliminary data provided by the authors on children ages 2 to 8 indicate a regular progression of scores with age up to age 5½ or 6, at which age most of the subjects reach the ceiling of the test. When the PPT scores of 28 Afro-American lower socioeconomic status males, age 3 years, were correlated with their scores on the Stanford-Binet, Johns Hopkins Perceptual Test, and Peabody Picture Vocabulary Test, the resulting coefficient of correlation in each case was .57.

BIBLIOGRAPHY:

AARONSON, M., and SCHAEFER, E. *Preschool Preposition Test: Manual of Instructions, 1968* (unpublished).

NORMAL SAMPLES

SCHEDULE OF MEASURES REPORTED FOR EACH OF THE INDIVIDUAL SAMPLES

N	SAMPLES	Code	Preschool Preposition Test	Peabody Picture Vocabulary Test	Stanford-Binet	Johns Hopkins Perceptual Test	Classroom Behavior Description	Mother's Behavior with Tutor and Child	PACT (Parent and Child Together)	ABC Inventory-Draw-A-Man	ABC Inventory-Comprehension	ABC Inventory-Concept Development	ABC Inventory-Visual Motor	ABC Inventory-Total Score
39	Inner City Black Male, Tutored Washington, D.C.	001	X	X	X	X		X						
26	Inner City Black Male, Not Tutored Washington, D.C.	002	X	X	X	X								
35	White Upper Middle-Class Nursery School, Silver Spring, Md.	004	X											
40	Suburban Elementary School Burtonsville, Md.	005	X											
31	Head Start, Rural and Suburban Montgomery County, Md.	006	X				X							
47	Head Start, Rural and Suburban (Sp. Sty.), Montgomery County, Md.	007 008	X	X			X							
33	Upper Middle-Class Nursery School Kansas	009	X											
38	Head Start Daycare Center Kansas	010	X											
36	Day Care, Mixed SES Kansas	011	X											
43	Working Class Preschool Detroit, Michigan	014	X											
394	Rural White EPSDT Program Maine	015	X	X										
100	Day Care, Mixed SES (very young sample), North Carolina	016	X	X (5 items from Bayley's Test Behavior Checklist)			X							
26	Urban, Low SES, Tutored, 1975 New York	017	X	X	X				1973? 1975					
47	Urban, Low SES, Not Tutored, 1975 New York	018	X	X	X									
21	Urban, Low SES, Tutored, 1977 New York	022	X	X	X				1975 1977					
12	Urban, Low SES, Not Tutored, 1977 New York	023	X	?	X									
17	Urban, Low SES, Tutored, 1977 New York	024	X	?	X				1974 1976					
11	Urban, Low SES, Not Tutored, 1977 New York	025	X	?	X									
15	Head Start Ohio	021	X	X	X									
18	Merrill Wausau, Wisconsin	026	X							X	X	X	X	X